

What is Claimed is:

1. A reactive non-isocyanate coating composition prepared by mixing epoxy, tertiary amine, anhydride, hydroxy- and, optionally, acid functional compounds, the tertiary amine functional compound being an oligomeric or polymeric tertiary amine with or without other functional groups, the anhydride functional compound being monomeric, oligomeric or polymeric cyclic anhydride.

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2. The composition of claim 1, wherein the anhydride functional compound is an oligomeric or polymeric anhydride having two or more anhydride groups per molecule.

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3. The composition of claim 1, wherein the tertiary amine functional compound is an oligomeric or polymeric tertiary amine having two or more tertiary amine groups per molecule.

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4. The composition of claim 1, wherein the epoxy functional compound is an oligomeric or polymeric epoxy having two or more epoxy-functional groups per molecule.

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5. The composition of claim 1, wherein the composition includes an acid functional compound and the tertiary amine and acid functional compounds are combined in a first polymer including tertiary amine and acid functional groups, the epoxy and hydroxy-functional compounds are combined in a second polymer including epoxy and hydroxyl functional groups, and the anhydride functional compound is in the form of a third polymer.

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6. The composition of claim 1, wherein the tertiary amine functional compound is in the form of a first polymer, the epoxy functional compound is in the form of a second polymer, the anhydride functional compound is in the form of a third polymer, and the hydroxy-functional compound is in the form of a fourth polymer.

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7. The composition of claim 1, wherein the tertiary amine functional compound is in the form of a first polymer, the epoxy functional compound is in the form of a second polymer, the anhydride functional compound is in the form of a third polymer, and the hydroxyl functional compound is made by including a hydroxyl functional group on the first or second polymer.

8. The composition of claim 7, wherein the composition includes an acid functional compound and the acid functional compound is made by including an acid functional group on the first or third polymer.

9. The composition of claim 1, wherein the composition is a waterborne composition.

10. The composition of claim 1, wherein the composition is a solvent-borne composition.

11. The composition of claim 1, wherein the tertiary amine functional compound is an acrylic copolymer based on dimethylaminoethyl methacrylate.

12. The composition of claim 1, wherein the anhydride functional compound is a monomeric, oligomeric or polymeric cyclic diacid anhydride.

13. The composition of claim 2, wherein the anhydride functional compound is a copolymer of maleic anhydride, styrene and acrylic monomers.

14. The composition of claim 1, wherein the anhydride functional compound is a mono-anhydride and the mono-anhydride is a dodecenyl succinic anhydride.

15. The composition of claim 1, wherein the epoxy functional compound is an acrylic copolymer containing glycidyl methacrylate.

16. The composition of claim 1, wherein the epoxy functional compound is a cycloaliphatic epoxy.

17. The composition of claim 1, wherein anhydride functional groups of the anhydride functional compound react with hydroxy-functional groups of the hydroxy-functional compound, and tertiary amine functional groups of the tertiary amine functional compound react with epoxy functional groups of the epoxy functional compound.

10 18. A substrate coated with the coating composition of claim 1.

19. A coating system having at least three components which are combined to make a coating composition, one of the components being a monomeric, oligomeric or polymeric anhydride functional compound, another of the components being an oligomeric or polymeric tertiary amine functional compound, another of the components being an oligomeric or polymeric epoxy functional compound, the system also including an hydroxy- functional compound, the hydroxyl functional compound being a fourth component or being combined with the oligomeric or polymeric tertiary amine functional compound or the epoxy functional compound.

20 20. The coating system of claim 19, further comprising an acid functional compound, the acid functional compound being a fifth component or being combined with the oligomeric or polymeric tertiary amine functional compound, the anhydride functional compound, or the hydroxy-- functional compound.

25 21. The coating system of claim 19, wherein the coating composition is a waterborne composition.

30 22. The coating system of claim 19, wherein the coating composition is a solvent-borne composition.

23. The coating system of claim 19, wherein the tertiary amine functional compound is an acrylic copolymer based on dimethylaminoethyl methacrylate.

24. The coating system of claim 19, wherein the anhydride functional compound is a copolymer of maleic anhydride, styrene and acrylic monomers.

25. The coating system of claim 19, wherein the anhydride functional compound is a mono-anhydride and the mono-anhydride is a dodecetyl succinic anhydride.

10 26. The coating system of claim 19, wherein the epoxy functional compound is an acrylic copolymer containing glycidyl methacrylate.

27. The coating system of claim 19, wherein the epoxy functional compound is a cycloaliphatic epoxy.

15 28. A substrate coated with the coating composition made from the coating system of claim 19.